In the Claims:

Please amend Claims 1, 18, and add new Claim 34 as follows:

1. (Currently Amended): A method of producing an embryo comprising the steps of:

(a) harvesting a microspore-containing plant segment from a donor plant;

(b) incubating said segment under pre-treatment conditions in absence of colchicine, and at a temperature from about 3° C to about 6°C, to maintain from about 50% to about 100% of microspores at a uninucleate stage of development;

(c) isolating microspores from said segment; and

(d) incubating said isolated microspores in an induction medium comprising arabinogalactan protein, to induce embryogenesis, thereby producing embryos.

2. (Original): The method according to claim 1, wherein said donor plant, in step (a) is a cereal plant.

3. (Original): The method according to claim 2, wherein said cereal plant is wheat or barley.

4. (Previously Amended): The method according to claim 1, wherein ~~a~~ said arabinogalactan protein in step (d) is present in said induction medium at a level of from about 1 mg/liter to about 100 mg/liter.

5. (Previously Amended): The method according to claim 4, wherein said arabinogalactan protein is present in said induction medium at a level of from about 10 mg/liter to about 25 mg/liter.

6. (Original): The method according to claim 5, wherein said arabinogalactan protein is present in said induction medium for about two weeks.

7. (Previously Amended): The method according to claim 1, wherein, in step (b), said microspores are at a uninucleate cell cycle G1 phase.

8. (Previously Amended): The method according to claim 1, wherein said pre-treatment conditions in step (b) comprise a temperature of from about 3°C to about 6°C for 3 to 10 days and incubation in an aqueous solution having from about 0.2 mol/liter to about 1.0 mol/liter of sugar alcohol.

9. (Original): The method according to claim 8, wherein said sugar-alcohol is selected from the group comprising mannitol, maltitol, sorbitol, xylitol, and any combination thereof.

10. (Previously Amended): The method according to claim 1, wherein said pre-treatment conditions in step (b) comprise incubation in water at a temperature of from about 3°C to about 6°C for 7 to 28 days.

11. (Original): The method according to claim 1, wherein, in step (a), said microspore-containing plant segment is selected from the group consisting of tillers, florets, spikes, anthers, pannicles and tassels.

12. (Original): The method according to claim 1, wherein said microspores, in step (d) are incubated in said induction medium for a period of from about 3 to about 14 days.

13. (Original): The method according to claim 1, wherein said induction medium, in step (d), comprises an auxin.

14. (Original): The method according to claim 13, wherein said auxin is phenylacetic acid.

15. (Original): The method according to claim 1, wherein said induction medium, in step (d), comprises glutamine at a level of from about 500 to about 1000 mg/L.

16. (Original): The method according to claim 1, wherein said induction medium, in step (d), additionally comprises ovary co-culture.

17. (Original): The method of claim 16, wherein the microspore containing plant segment, in step (a), is obtained from wheat.

18. (Currently Amended): A method of plant regeneration from microspores comprising the steps of:

(a) harvesting a microspore-containing plant segment from a donor plant;

(b) incubating said segment under pre-treatment conditions in absence of colchicine, and at a temperature from about 3° C to about 6°C, to maintain from about 50% to about 100% of microspores at a uninucleate stage of development;

(c) isolating microspores from said segment;

(d) incubating said isolated microspores in an induction medium comprising an auxin and an arabinogalactan protein, to induce the production of embryos;

(e) incubating said embryos in a differentiation medium to produce differentiated embryos; and

(f) regenerating plants from said differentiated embryos.

19. (Original): The method of plant regeneration according to claim 18, wherein step (d) comprises placing embryos on a support.

20. (Original): The method according to claim 19, wherein said support comprises filter paper.

21. (Original): The method according to claim 18, wherein step (c) comprises blending or vortexing said segment in an aqueous solution of about 0.2 mol/liter to about 1.0 mol/liter sugar alcohol.

22. -25. (Canceled)

26. (Original): The method of claim 25, wherein the step of introducing comprises particle bombardment.

27. (Original): The method of claim 25, wherein the step of introducing comprises *Agrobacterium* mediated transformation.

28.-30. (Canceled)

31. (Currently Amended): A method of producing a composition of microspores comprising:

(a) harvesting a microspore-containing plant segment from a donor plant;

(b) incubating said segment under pre-treatment conditions in absence of colchicine, and at a temperature from about 3° C to about 6°C, to maintain from about 50% to about 100% of microspores at a uninucleate cell cycle;

(c) isolating microspores from said segment; and

(d) incubating said isolated microspores in an induction medium comprising an arabinogalactan protein to produce said composition of microspores comprising greater than about 25% viable microspores after a 10 day incubation period.

32. (Currently Amended): A method of producing a composition of microspores comprising:

(a) harvesting a microspore-containing plant segment from a donor plant;

(b) incubating said segment under pre-treatment conditions in absence of colchicine, and at a temperature from about 3° C to about 6°C, to maintain from about 50% to about 100% of microspores at a uninucleate cell cycle;

(c) isolating microspores from said segment; and

(d) incubating said isolated microspores in an induction medium comprising an arabinogalactan protein to produce said composition of microspores comprising greater than about 15%.

33. (Currently Amended) A method of producing an embryo comprising the steps of:

(a) harvesting a microspore-containing plant segment from a donor wheat or barley plant;

(b) incubating said segment under pre-treatment conditions in absence of colchicine, and at a temperature from about 3° C to about 6°C, to maintain from about 50% to about 100% of microspores at a uninucleate stage of development;

(c) isolating microspores from said segment; and

(d) incubating said isolated microspores in an induction medium comprising arabinogalactan protein to induce embryogenesis, thereby producing embryos.

34. (New) A method of introducing a gene of interest into a microspore comprising, introducing a genetic construct comprising said gene of interest into said microspore, said microspore obtained following the steps of pre-treatment (step (b)) and isolation (step (c)) as defined in Claim 1.